MANATO OGAWA

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Education

University of Wisconsin Madison, *Class of 2028* Madison, WI

Bachelor of Science in Computer Science and Data Science

Related Courses: AP Computer Science A, Programming II, Programming III (Spring), Linear Algebra, Discrete Mathematics (Spring), Data Science Programming I (Spring), Introduction to Computer Engineering (Spring), Web Design

Research Publications / Projects / Internships

Undergraduate Researcher at Caicedo Lab *(link)* *Mar 2025-Present*

- Conducting research on object detection and machine learning algorithms to analyze cellular behavior under various drug treatments
- Contributing to the development of predictive models that forecast outcomes such as cell shape, movement, and phenotypic changes

Stanford University Research Internship (Audio Separation Analysis) (*link*) *June 2023-August 2023*

- Co-authored a paper on audio source separation and instrument identification using the Fast Fourier Transform (FFT) and TensorFlow, achieving 50% accuracy in classifying 20 musical instruments.

Parking Space Occupancy AI research paper (*link*) *May 2023-September 2023*

- Developed a real-time object detection model to classify parking spaces as occupied or vacant using YOLOv5 algorithm
- Trained the model based on a custom dataset of 135 labeled images, optimizing detection performance and demonstrating an increase in accuracy from 6.5% to 41.3% when epochs were raised from 50 to 300

Autonomous Robotic Arm Project *(link)* *May 2024-June 2024*

- Designed a robotic arm with real-time object detection using TensorFlow Lite on Raspberry Pi 4, achieving efficient on-device inference with a custom dataset of 700 images across six object classes.

Neural Network Framework Development Capstone Project *October 2024-January 2025*

- Built a feedforward neural network from scratch with NumPy and Pandas, implementing activation functions, backpropagation, and gradient descent; trained on CSV and image data, gaining strong understanding of neural network architecture and optimization.

Work Experience

AI trainer / Evaluator *Sep 2024-Present*

Outlier AI (www.outlier.ai)

- Utilized large language models (LLMs) to train and enhance predictive models improving model accuracy and performance in decision-making in complex business environment, completing over 100 tasks across 5 different projects

Computer Science and Math Tutor *Jan 2025-Present*

- Provide one-on-one tutoring to over 20 students in computer science and math, helping students understand key concepts, complete assignments, and prepare for exams.

Extracurricular Activities

Wisconsin Autonomous Perceptions Team *Madison, WI | Sept 2024-Present*

- Developed and optimized machine learning models for autonomous vehicle perception, collaborating with a multidisciplinary team to enhance object detection algorithms for reliable recognition of environmental elements in real-time, ensuring robust safety and collision avoidance
- Utilized OpenCV, TensorFlow, and PyTorch to implement neural networks for processing image and sensor data, contributing to real-time decision-making and control systems for autonomous navigation.

Skills & Certifications

Quantum Computing Certification (2023)

SQL for Data Science (2024), JDBC with Oracle (2024), Spring Framework Fundamentals (2024)

Programming Languages: Java, Python, R, HTML, JavaScript, SQL

Libraries and Frameworks: JDBC, Spring, Pandas, NumPy, SKlearn, Matplotlib, OpenCV, PyTorch, Tensorflow, Librosa, SciPy, YOLOv5

Developer Tools: Github/Git, RStudio, Visual Studio

Languages: Japanese, English